Weather

2-3 The student will demonstrate an understanding of daily and seasonal weather conditions. (Earth Science)

2-3.1 Explain the effects of moving air as it interacts with objects.
Taxonomy level: 2.7-B Understand Conceptual Knowledge

Previous/Future knowledge: This is the first time that students have investigated the effects of moving air on objects. This is foundational knowledge that will be further developed in 3rd grade (3-3.8) when students apply this to processes that will affect Earth materials (for example, weathering and erosion). In 4th grade (4-4), students will explore this concept as it relates to weather.

It is essential for students to know that when air interacts with objects, the objects move.

- Examples of things that are affected by moving air are a kite, leaves, or a sailboat.
- When air interacts with these objects, they move.
- If there is no moving air then the kite, the leaves, nor the sailboat will move.
- Moving air can also be called *wind*.

The effects of moving air (wind) can be used to determine how strong the wind is as described on a Beaufort Wind Scale (2-3.4).

It is not essential for students to measure the effects of moving air on objects.

Assessment Guidelines:
The objective of this indicator is to *explain* the effects of moving air on objects; therefore, the primary focus of assessment should be to construct a cause-and-effect model of the various ways that objects are affected by moving air. However, appropriate assessments should also require students to *recall* objects that will move when they interact with air; or *exemplify* ways that air moves and affects objects.

Weather

2-3 The student will demonstrate an understanding of daily and seasonal weather conditions. (Earth Science)

2-3.2 Recall weather terminology (including temperature, wind direction, wind speed, and precipitation as rain, snow, sleet, and hail).
Taxonomy level: 1.2-A Remember Factual Knowledge

Previous/Future knowledge: In kindergarten (K-4.2), students compared daily weather patterns. This is the first time that students have been introduced to formal weather terminology. This concept will be further investigated in 4th grade (4-4) when students summarize the conditions and effects of severe weather phenomena (including thunderstorms, hurricanes, and tornadoes) and related safety concerns. In 6th grade (6-4), students will demonstrate an understanding of the relationship between Earth's atmospheric properties and processes and its weather and climate.

It is essential for students to know that weather conditions can be described using specific weather terminology.

Temperature	How hot or cold the air is at a given time. Each day the high and low temperatures are recorded.
Wind direction	The direction from which the wind blows
Wind speed	How fast or slow the wind blows
Precipitation	The type of water falling from the clouds as rain, snow, sleet, or hail

It is not essential for students to know other weather terminology at this grade. Students do not need to know the stages of the water cycle or the types of clouds found in the sky.

Assessment Guidelines:
The objective of this indicator is to *recall* weather terminology; therefore, the primary focus of assessment should be to remember specific weather terms including temperature, wind direction, wind speed, and precipitation as rain, snow, sleet, and hail. However, appropriate assessments should also require students to *identify* each weather term; or *recognize* weather terminology by definition.

Weather

2-3 The student will demonstrate an understanding of daily and seasonal weather conditions. (Earth Science)

2-3.3 Illustrate the weather conditions of different seasons.
Taxonomy level: 2.2-A Understand Factual Knowledge

Previous/Future knowledge: In kindergarten (K-4.2), students compared weather patterns that occurred from season to season. This concept will be further investigated in 4th grade (4-4.3) when students compare daily and seasonal weather patterns and in 6th grade (6-4.6) when they predict weather conditions or patterns.

It is essential for students to know that each season has different weather patterns. There are four basic seasons: winter, spring, summer, and fall/autumn.

Winter	The weather may be cold or freezing; there may be rain, snow, or sleet
Spring	The weather starts to get warmer; there may be a lot of rain; the air can be windy
Summer	The weather is often hot and dry; there may be little or no rain; the air can be windy
Fall/Autumn	The weather starts to get cooler; there may be little or no rainfall; the air can be windy

NOTE TO TEACHER: For students moving into our communities that are not native to South Carolina, they may come from areas that do not experience the four seasons that we do. Many areas only experience two definite seasons so be aware of this during instruction.

It is not essential for students to know air pressure or humidity conditions. They do not need to understand seasons form the astronomy perspective-revolution around the sun and tilt of Earth's axis.

Assessment Guidelines:
The objective of this indicator is to *illustrate* weather conditions of different seasons; therefore, the primary focus of assessment should be to give examples or illustrations of weather conditions from different seasons. However, appropriate assessments should also require students to *recall* the four basic seasons; *identify* different seasonal weather conditions; or *recognize* different seasonal weather conditions.

Weather

2-3 The student will demonstrate an understanding of daily and seasonal weather conditions. (Earth Science)

2-3.4 Carry out procedures to measure and record daily weather conditions (including temperature, precipitation amounts, wind speed as measured on the Beaufort scale, and wind direction as measured with a windsock or wind vane).
Taxonomy level: 3.1-A Apply Factual Knowledge

Previous/Future knowledge: In kindergarten (K-4.2), students compared daily weather patterns. This is the first time that students have been introduced to procedures used to measure daily weather conditions. This concept will be further investigated in 4th grade (4-4.5) when students carry out procedures for data collecting and measuring weather conditions (including wind speed and direction, precipitation, and temperature) by using appropriate tools and instruments. In 6th grade (6-4.5), students will use appropriate instruments to collect weather data (including wind speed and direction, air temperature, humidity, and air pressure).

It is essential for students to carry out proper procedures to read, measure, and record daily weather conditions. Appropriate tools used to measure weather conditions are:

Temperature
- A *thermometer* is used to measure temperature.
- Thermometers record temperature in degrees Fahrenheit or degrees Celsius.

Precipitation
- A *rain gauge* is used to measure rainfall.
- A rain gauge measures in inches.

Wind direction
- A *wind sock* or *wind vane* is used to determine wind direction.
- The wind sock or vane will point in the direction from which the wind is blowing.

Wind speed
- A *Beaufort Wind Scale* is used to measure wind speed in miles per hour (mph).
- Visual clues are the essential comparisons.

Beaufort Scale	Wind speed	Description	Visual cues
0	1 mph	Calm winds	Smoke rises vertically
1	2 mph	Light winds	Smoke drifts
2	5 mph	Light breeze	Leaves rustle
3	10 mph	Gentle breeze	Lighter branches sway
4	15 mph	Moderate breeze	Dust rises. Branches move
5	21 mph	Fresh breeze	Small trees sway
6	28 mph	Strong breeze	Larger branches move
7	35 mph	Moderate gale	Trees move
8	42 mph	Fresh gale	Twigs break
9	50 mph	Strong gale	Branches break

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10	59 mph	Whole gale	Trees fall
11	69 mph	Storm	Violent blasts
12	75+ mph	Hurricane	Structures shake

It is not essential for students to know how to measure air pressure or humidity conditions, to use other weather instruments, or memorize the Beaufort Wind Scale.

Assessment Guidelines:
The objective of this indicator is to *carry out* procedures to measure weather conditions; therefore, the primary focus of assessment should be to apply a procedure to the tool that would be needed to record weather measurements. However, appropriate assessments should also require students to *interpret* weather data collected with proper tools; *identify* tools that measure and record daily weather; *use* a Beaufort Wind Scale to identify weather conditions in a drawing or illustration; or *recall* the different types of weather conditions.

Weather

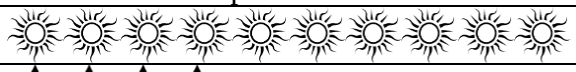
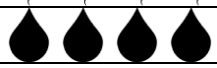
2-3 The student will demonstrate an understanding of daily and seasonal weather conditions. (Earth Science)

2-3.5 Use pictorial weather symbols to record observable sky conditions.
Taxonomy level: 3.2-B Apply Factual Knowledge

Previous/Future knowledge: In kindergarten (K-4.2), students compared daily weather patterns. In 4th grade (4-4.2), students will classify clouds, so being able to use pictures to record weather conditions will provide a foundation.

It is essential for students to use pictorial weather symbols as they record data from observations of the sky.

Below is an example of a pictograph that uses weather symbols to record data on observations of the sky.

Sample Weather Record	
Sunny	
Rainy	
Cloudy	
Snowy	
Key: Each Weather symbol stands for 1 day Sunny  Rainy  Cloudy  Snowy 	

It is not essential for students to use any other weather symbols or understand read or create a weather station model.

Assessment Guidelines:
The objective of this indicator is to *use* pictures to represent weather conditions; therefore; the primary focus of assessment should be to apply a procedure to the symbol that would be needed to record the sky conditions. However, appropriate assessments should also require students to *identify* weather symbols from pictures or diagrams; or *interpret* the reading of the data collected.

Weather

2-3 The student will demonstrate an understanding of daily and seasonal weather conditions. (Earth Science)

2-3.6 Identify safety precautions that one should take during severe weather conditions.
Taxonomy level: 1.1-A Remember Factual Knowledge

Previous/Future knowledge: Students have not previously studied severe weather conditions or the safety precautions one should take during them. In 4th grade (4-4.4), students will summarize the conditions and effects of severe weather phenomena (including thunderstorms, hurricanes, and tornadoes) and related safety concerns.

It is essential for students to know that there are certain safety precautions that should be taken during severe weather conditions. Some examples of severe weather conditions that are most common to South Carolina and the safety precautions needed are:

Flood	Stay on high ground
Lightning storms	Stay indoors or low to the ground
Tornado	Stay indoors away from windows; go to the basement or a windowless room
Thunderstorm	Do not stand under a tree; stay away from water (pools, puddles, bathtubs)
Hurricane	Stay indoors away from windows; follow an evacuation route to a safer place away from the hurricane's path

It is not essential for students to learn safety precautions of other types of severe weather conditions or know how the examples of severe weather given are created.

Assessment Guidelines:
The objective of this indicator is to *identify* safety precautions to observe during severe weather conditions; therefore; the primary focus of assessment should be to remember safety precautions for severe weather conditions. However, appropriate assessments should also require students to *recall* which precautions to use during particular types of severe weather; or *recognize* appropriate safety precautions from drawings, pictures, or illustrations.